

ABSTRACT

Methods for preparing a polymer-based stent assembly comprising an inflatable balloon catheter and a polymer-based stent resistant to relaxation-related negative recoil are provided. The methods comprise heating a polymeric cylindrical device which is at a final predetermined shape and diameter to a temperature sufficiently above the glass transition temperature (Tg) of the polymer and for a time sufficient to erase any memory of previous processing of the polymeric cylindrical device and then quenching the polymeric cylindrical device to provide an educated polymeric cylindrical device having a memory of the final predetermined diameter and shape, mounting the educated cylindrical device on an inflatable balloon catheter, reducing the diameter of the educated cylindrical device by heating to a temperature at or slightly above the Tg of the polymer while evenly applying pressure on the exterior surface of the wall of the cylindrical device, and then cooling the cylindrical device below the Tg of the polymer to provide a stent assembly comprising an inflatable balloon catheter and an expandable, educated, polymeric stent snugly and stably disposed thereon. Assemblies comprising an inflatable balloon and a polymer based stent that is substantially resistant to relaxation related recoil mounted snugly on the balloon are also provided.